

Sectoral Interdependencies and Multipliers in Nigeria: An Input-Output Approach

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This study examines the sectoral contributions to Nigeria's Gross Domestic Product (GDP) and intersectoral interdependencies using Input-Output (I-O) analysis. Results as obtained from the 2022 Eurostat database revealed significant value added/sectoral contributions, agriculture (\$6.512B, 15.1%), fishing (\$4.529B, 1.1%), food/beverages (\$8.446B, 19.6%), and mining/quarrying (\$14.659B, 34.1%). Intersectoral interdependencies highlighted key intersectoral linkages between agriculture and food/beverages, mining/quarrying and other industries, and fishing and food/beverages. Results showed that agriculture's output (74.58%) is primarily consumed by households and used by the food and beverages sector; output from mining/quarrying (85.73%) is consumed mainly by industries (manufacturing/construction), and output from the fishing (81.68%) sector is mainly consumed by households and used by the food and beverages sector. The Type I and Type II multipliers assessed the economic ripple effects of changes in industry demand. The findings indicate substantial indirect effects, with output multipliers ranging from 1.726% (food/beverages), 2.118% (fishing), 1.803% (mining/quarrying), and 1.758% (agriculture). Income multipliers range from income multipliers: to \$2.053B (food/beverages), \$3.290B (fishing), \$2.540B (agriculture), and \$3.01B (mining/quarrying). Fishing and mining/quarrying sectors exhibited the highest total multiplier effects, emphasizing their potential for driving economic growth. The study confirms the robustness of the results using I-O analysis, validating the initial findings. Policy implications include targeted investments in strategic sectors such as agriculture, fishing, food/beverages, and mining/quarrying, which would stimulate economic growth and diversification. Also, resource allocation and diversification strategies to enhance intersectoral linkages would maximize economic benefits and reduce dependence on individual sectors.

Keywords: Input-output analysis, sectoral interdependencies, multipliers, economic growth, Nigeria.

INTRODUCTION

Input-Output (I-O) analysis, developed by Wassily Leontief in the 1930s, [Leontief \(1936\)](#), has been a cornerstone of economic planning and policy-making globally. Initially applied to the US economy, I-O analysis has since been widely adopted by international organizations, governments, and researchers to understand complex economic structures. Globally, I-O analysis has been instrumental in post-World War II reconstruction efforts in Europe and Japan ([Chenery, 1955](#)) development planning in newly independent nations during the 1950s-1960s ([Hirschman, 1958](#)) economic restructuring in Eastern European countries after the fall of communism, and analyzing global value chains and trade relationships (Koonai, 1992). Nigeria, Africa's largest economy, faces challenges related to economic

diversification, dependence on oil exports, limited sectoral linkages, and infrastructure deficits ([Ogbonna and Ebiringa, 2015](#)). Structural transformation, resource allocation, infrastructural development, and poverty reduction constitute the major usefulness of I-O analysis in emerging economies like Nigeria. This helps identify key sectors driving economic growth and diversification, informing policies for structural transformation, identifying strategic infrastructure investments to support sectoral growth, and policies that target poverty reduction and employment generation ([Timmer, 2012](#); [McMillan and Rodrik, 2011](#)).

Nigeria, Africa's largest economy, faces significant challenges in achieving sustainable economic growth and diversification. Nigeria's economy, heavily reliant on oil exports, accounting for approximately 70-80% of government revenue and 90% of foreign exchange earnings faces

challenges in diversification and sustainable growth heavily reliant on oil exports, (OPEC, 2022). In addressing this, this study has analyzed intersectoral linkages by revealing strategic sectors to diversify the economy, inform resource allocation, and stimulate economic growth, reducing reliance on oil using I-O analysis (Dietzenbacher and Lahr, 2013).

Input-Output (I-O) analysis offers a comprehensive framework to understand sectoral interdependencies and economic impacts (Miller and Blair, 2020). Despite its potential, I-O analysis has been underutilized in Nigeria, particularly in examining sectoral multipliers (Adebayo and Odusanya, 2022). Research has shown that sectors like agriculture, manufacturing, and services contribute significantly to Nigeria's GDP (CBN, 2022). However, these contributions' intersectoral relationships and multiplier effects remain largely unexplored (Akanni and Olowookere, 2021). The country relies heavily on fishing, mining, and agricultural activities to drive its growth. These sectors contribute significantly to the country's Gross Domestic Product (GDP), with agriculture accounting for 20.85% (CBN, 2022). Nigeria's mining industry has seen impressive growth, with an 8.71% average annual growth rate, while the fishing sector has also benefited from protectionist trade measures, achieving a 25% reduction in fish imports annually (FMARD, 2020). However, Nigeria's economy still heavily relies on oil exports, making it vulnerable to global oil price fluctuations (OPEC, 2022). To reduce this vulnerability, policymakers are pushing for economic diversification and sectoral development. The country has immense growth potential, but its economic progress has been hindered by long-standing policy and institutional challenges, resulting in 80 million people living in extreme poverty (Federal Government of Nigeria, 2020). The World Bank suggests that implementing critical macroeconomic and structural reforms can reduce crisis vulnerabilities and increase growth, ultimately lifting per-capita incomes and sustainably reducing poverty.

To achieve this, Nigeria can leverage Input-Output (I-O) analysis, a robust framework developed by (Leontief, 1951),

to examine sectoral interdependencies and economic impacts. I-O analysis provides a comprehensive picture of the flows of goods and services within an economy, enabling policymakers to identify key sectors, analyze relationships, and estimate economic effects.

Table 1 presents an input-output table which is a matrix that displays the economic relationships between different industries within an economy. The table is divided into two main parts: Rows represent the outputs of each industry; Columns represent the inputs required by each industry. The inter-industry coefficients (shaded area) show how the output of one industry (row) is used as an input in another industry (column). In the table, consider the entry in row 1 and column 2 (A_{1,2}); Industry 1 (row 1) supplies inputs to Industry 2 (column 2); The value in this cell represents the amount of Industry 1's output required by Industry 2. Conversely, the user of Industry 1's output is Purchaser 2 (Zhang, 2022).

However, by considering Nigeria's economic structure and sectoral interdependencies, Nigeria's economy is characterized by a dominant oil sector, a growing services sector, and an underdeveloped manufacturing sector (CBN, 2022). Once a significant contributor to the country's GDP, agriculture has declined in recent years (Adebayo and Odusanya, 2022). The intersectoral relationships between these sectors are complex, with each sector influencing the others through various channels. Input-Output (I-O) analysis is a valuable tool for measuring economic impacts, including indirect and induced effects (Miller and Blair, 2020).

Previous studies have applied I-O analysis to Nigeria's economy, focusing on sectoral contributions to GDP, and intersectoral linkages (Adegboye and Olofin, 2015; Oladipo and Oyinlola, 2017; Central Bank of Nigeria (CBN), 2020). Also, studies have focused on aggregate economic indicators, such as GDP and national accounts (Akanni and Olowookere, 2021), rather than sector-specific multipliers. However, research on sectoral multipliers in Nigeria using I-O multipliers is limited. Multipliers measure the ripple effects of changes in one sector on other sectors and the broader economy (Lahr and Stevens, 2020). However, this study

Table 1. Input-output table.

		Industry/sectors				Final users					Sectors gross output
		Sector (1)	Sector (2)	...	Sector (n)	HC	Govt	Invt.	Exp.	Imp.	
industry	Sec(1)	A _{1,1}	A _{1,2}	...	A _{1,n}	Hc ₁	Govt ₁	Invt ₁	Exp ₁	imp ₁	Gross(sec) ₁
	Sec(2)	A _{2,1}	A _{2,2}	...	A _{2,n}					imp ₂	Gross(sec) ₂

	Sec(n)	A _{n,1}	A _{n,2}	...	A _{n,n}					imp	Gross(sec) ₃
Value added	Compensation of employee (wages)	W ₁	W ₂	...	W ₃						
	Operating surplus	Ops ₁	Ops ₂	...	Ops ₃						
	Taxes on products	Taxp ₁	Taxp ₂	...	Taxp ₃						
Sectors gross output		Gross(sec) ₁	Gross(sec) ₂	...	Gross(sec) ₃						

NB: HC=household consumption, Govt=government expenditure, Invt=investment, Exp=exports, Imp=imports, Sec=sectors, Taxp=taxes on products, Ops=operating surplus, W=wage



updates and expands upon existing research by utilizing the latest data and emphasizing policy implications for economic diversification, resource allocation, and environmental policies. Policymakers require insights into sectoral multipliers to effectively drive economic growth, job creation, and poverty reduction. This study aims to:

- determine the value added of the strategic sector's contributions to economic growth
- investigate sectoral interdependencies in Nigeria using I-O analysis.
- estimate sectoral multipliers for strategic sectors, including agriculture, manufacturing, services, and mining.

MATERIALS AND METHODS

This study employed a quantitative approach, utilizing Nigeria's 2022 I-O table, comprising 26 sectors.

Model specification: This study employed the following models:

GDP Expenditure Equation

$$\text{GDP (E)} = \text{Household Consumption (C)} + \text{Investment (I)} + \text{Government Spending (G)} + \text{Exports (X)} - \text{Imports (M)} \quad \dots (1)$$

GDP Identity

$$\text{GDP} = \text{C} + \text{I} + \text{G} + \text{X} - \text{M} \quad \dots (2)$$

Production equations are used to model the relationships between sectoral outputs, inputs, and value-added, while the Leontief inverse equation estimates sectoral multipliers, measuring the ripple effects of changes in final demand on sectoral outputs, which is used for quantifying sectoral interdependencies and measuring sectoral contributions (Effiong *et al.*, 2021). The model is specified as,

GDP Production Equation

$$\text{GDP} = \text{Gross Output (GO)} - \text{Intermediate Consumption (IC)} \quad \dots (3)$$

Simplified Production Equation

$$\text{GDP} = \text{GO} \times (1 - \text{IC/GO}) \quad \dots (4)$$

Input-Output Equation

$$\text{GDP} = \text{GO} \times (1 - a) \quad \dots (5)$$

where $a = \text{IC/GO}$ (Technical Coefficients Matrix) $\dots (5)$

Leontief Inverse Equation

$$\text{Gross Output (GO)} = (1 - a)^{-1} \times \text{Value Added (VA)} \quad \dots (6)$$

where VA = GDP

GDP: Gross Domestic Product

C: Household Consumption Expenditure

I: Fixed Capital Formation

G: Government Expenditure

X: Exports

M: Imports

GO: Gross Output

IC: Intermediate Consumption

a: Technical Coefficients Matrix (IC/GO)

VA: Value Added

Leontief Input-Output Model: The Leontief model in equation (6) is a fundamental framework for analyzing intersectoral relationships and estimating multipliers (Leontief, 1951). The model is based on the following equation:

$$X = 1 - A^{-1}Y \quad (7)$$

Where: X = Total output vector (n×1)

I = Identity matrix (n×n)

A = Technical (I-O) coefficient matrix (n×n)

Y = Final demand vector (n×1)

Leontief Inverse Matrix: The Leontief inverse matrix was used to estimate the multipliers and is calculated as:

$$L = 1 - A^{-1} \quad (8)$$

Type I Multiplier Model: Type I multipliers measure the direct and indirect effects of changes in final demand on output (Miller and Blair, 2020).

$$\text{Type I Multiplier (M_I)} = \frac{\Delta X}{\Delta Y} = (1 - A)^{-1} \quad (9)$$

Multiplier coefficients which represent the column sum of the Leontief inverse are given by:

$$\alpha(i) = \sum_{j=1}^n (i, k) \quad (10)$$

Where, $\alpha(i)$ = multiplier coefficient for any given industry

Type II Multiplier Model: Type II multipliers capture the induced effects, in addition to direct and indirect effects, of changes in final demand on output (UN, 1993).

$$\text{Type II Multiplier (M_{II})} = \frac{\Delta X}{\Delta Y} = (1 - (A + C))^{-1} \quad (11)$$

Where:

C = Household consumption coefficient matrix

Data analysis: The inter-industry table, which displays the transactions between sectors, shows the flow of goods and services (Ferreira and Rossi, 2015). The study employed the sectoral multiplier analysis which involved estimating the output, employment, and income multipliers for the selected sectors as well as sensitivity analysis which was done to examine the robustness of the results to changes in the input coefficients and final demand.

RESULTS AND DISCUSSION

Value added of strategic sector's contributions to Gross Domestic Growth

As presented in Table 2, the components of value added represent the sector's contribution to the Gross Domestic Product (GDP). Value added for the agricultural sector was \$6.512 billion, with compensation of employees (1.23%) and net operating surplus (97.10%) being the largest components. Value added for the fishing sector was \$4.529 billion, dominated by a net operating surplus (96.59%). Also, food/beverage and mining/quarrying had a value-added of \$8.446 and \$14.650 billion respectively, with a net operating surplus (95.48 and 96.87%) and compensation of employees (2.79%) being significant. Sectoral contributions to GDP



Table 2. Components of value added – 2022 (\$ million).

Industry	Compensati on of employees	Taxes on production	Subsidies on production	Net operating surplus	Net mixed income	Consumpti on of fixed capital	Value added	Gross output
1 Agriculture	72255140 (1.23)	12033320 (0.19)	-8330602 (-0.13)	6223971000 (97.10)	65012030 (1.01)	50855150 (0.79)	6,512,796,038 (100)	19204942655.41
2 Fishing	10557110 (2.34)	440335.3 (0.09)	-292756.2 (-0.06)	436125700 (96.59)	2703238 (0.59)	2446571 (0.54)	4,529,801,98.1 (100)	567250260.90
3 Food/ beverage	226730400 (2.79)	33005090 (0.39)	-12248850 (-0.15)	8048809000 (95.48)	94373290 (1.12)	45572020 (0.54)	8,446,240,950 (100)	587920334.78
4 Mining/ quarrying	177656300 (1.21)	40928560 (0.28)	-708251.1 (-0.005)	14184160000 (96.87)	144330600 (0.99)	102859000 (0.70)	14,650,226,208.9 (100)	322729713512.51
Total of all industries	262278320	86407305.3	-21580459.3	23291491800	306419158	201732741	24,126,748,865	43089826763.60

NB: Percentages are in parenthesis

Table 3. Industry-wise final demand and gross output – 2022).

Industry	Household final consumption	Non-profit institutions serving households	Government final consumption	Gross fixed capital formation	Changes in inventories	Total final demand	Gross output
1 Agriculture	3043598000 (74.58)	997578500 (24.51)	5074180 (0.12)	20341830 (0.49)	3640730 (0.09)	4070233240 (100)	19204942655.41
2 Fishing	131415700 (81.68)	25103830 (15.66)	2514548 (1.57)	8644.47 (0.005)	1243550 (0.78)	160,286,272.47 (100)	567250260.9
3 Food and beverages	14812110000 (68.69)	6744033000 (31.28)	4644.285 (0.000022)	8007.873 (0.000037)	5934145 (0.028)	21,562,089,797.16 (100)	322729713512.51
4 Mining/ quarrying	137691400 (85.73)	15892030 (9.92)	1543437 (0.96)	2411855 (1.51)	2706671 (1.69)	160,245,393 (100)	587920334.78
Total of all industries	15111652900 (50.90)	7782607360 (26.22)	6753165165 (22.75)	22770337.343 (0.077)	13525096 (0.046)	29683720858.34 (100)	43089826763.60

NB: Percentages are in parenthesis

were 15.1%, 1.1%, 19.6%, and 34.1% for agriculture, fishing, food/beverage, and mining/quarrying respectively. Wang (2020) analyzed China's sectoral contributions to GDP, highlighting the dominance of the service sector. These results are similar to studies carried out by Singh (2022) who examined India's agricultural sector's contribution to GDP, emphasizing its significance. Also, Li (2023) investigated the sectoral contributions to GDP in the EU, focusing on the impact of climate change mitigation policies.

Sectoral interdependencies

Table 3 highlights the intersectoral interdependencies between various industries in the Nigerian economy and demonstrates the significance of intersectoral interdependencies in understanding economic structures and informing policy decisions. From the results, the key intersectoral interdependencies include;

- **Agriculture and food/beverages:** The food and beverages sector relies heavily on agriculture for inputs (as shown in the Leontief matrix). Agriculture's output (74.58%) is primarily consumed by households and used by the food and beverages sector.
- **Mining/quarrying and Other Industries:** Mining/quarrying supplies inputs to various industries, including

manufacturing and construction (as shown in the Leontief matrix), and its output (85.73%) is primarily consumed by industries.

- **Fishing and food/beverages:** Fishing's output (81.68%) is mainly consumed by households and used by the food and beverages sector.

These results provide valuable insights into the complex relationships between industries within an economy, thus, aligns with studies carried out by Wang (2020), who analyzed the intersectoral linkages in China's economy, highlighting the critical role of the manufacturing sector in driving economic growth. Singh (2022), examined the interdependencies between agriculture and other sectors in India, emphasizing the need for policies promoting agricultural growth.

Sectoral Multipliers for Strategic Sectors: Sectoral multipliers assess the economic ripple effects of changes in industry demand, encompassing both direct and indirect impacts. Utilizing input-output analysis, these multipliers quantify the financial consequences of economic disturbances (Acheampong, 2020).

Multipliers are grouped into:



- Type I Multipliers: Measure direct and indirect effects, capturing the initial demand change and subsequent downstream impacts.
- Type II Multipliers: Consider a wider scope, encompassing direct effects (initial demand change), indirect effects (downstream impacts), and induced effects (changes in household consumption and employment).

Output and income multipliers for Nigeria's Strategic Sectors:

As presented in Table 4, the Type I multiplier for the total output explains that the initial change in output results from a change in input (e.g., an increase in production due to new investment)-(direct effect) as well as subsequent changes in output resulting from the direct effect (e.g., increased demand for supplies, services, or labor)-indirect effect. This implies that for every 1% change in input, output from the food and beverage, fishing, mining/quarrying, and agricultural sectors increases by 1.726, 2.118, 1.803, and 1.758 percent respectively. This can be broken down into, direct effect: 1% (initial change); indirect effect: 0.726, 2.118, 1.803, and 1.758% (additional change due to subsequent effects). This suggests that the indirect effects are substantial, ranging from 0.726% to 1.118%; the total multiplier effect (direct + indirect) ranges from 1.726 to 2.118, and for every 1% change in input, the output changes by approximately 1.7% to 2.1%. In contrast, the Type II multiplier explains that the food and beverage sector, fishing, mining/quarrying, and agricultural sectors have, direct effect: 1 (initial change in output resulting from a change in input), indirect effect: 0.655, 0.870, 0.422, and 0.414 for these sectors (inter-industry effects due to changes in intermediate goods and services), and induced effect: 1 (household consumption or demand-driven effects indicating changes in output due to household spending and consumer demand).

On the other hand, Table 5 explains that, the Type I multiplier measures the direct effect of an increase in economic activity (investment) on the total output of each sector. From the

results, for every \$1 rise in investment, output in fishing, food & beverages, agriculture, and mining/quarrying increases by \$2.22B, \$1.43B, \$1.77B, and 2.18 dollars respectively. The fishing and mining/quarrying sectors had the highest direct multiplier effects indicating that they are the most responsive to changes in investment in the country. Similarly, the total income multiplier (Type II) measures the total effect (direct + indirect) of an increase in investment on the total income of each sector. This implies that for every \$1 increase in investment in the country, the fishing, food/beverages, agriculture, and mining/quarrying sectors' total income increases by \$3.29, \$2.05, \$2.54, and \$3.01 respectively. The fishing and mining/quarry sectors had the highest total multiplier effects, indicating they generated significant indirect impact throughout the economy, while food/beverage had the lowest total multiplier effect, suggesting it has limited indirect effects. This suggests the need for policymakers to identify sectors with high total multiplier effects (like fishing and mining/quarry sectors) for targeted investments. Also, businesses can recognize sectors with significant indirect effects (like fishing, agriculture, and mining/quarry sectors) for strategic partnerships.

These results are similar to Wang (2020), who applied input-output analysis to examine the economic impacts of COVID-19 on China's economy, highlighting the importance of considering indirect effects. Singh (2022), used input-output analysis to investigate the interdependencies between agriculture and other sectors in India, emphasizing the role of multipliers in policy decisions. Also, Li (2023), developed a dynamic input-output model to analyze the economic impacts of climate change mitigation policies in the EU, demonstrating the relevance of Type II multipliers. Other sector-specific studies were linked to Acheampong (2020) who analyzed the economic impacts of Ghana's agricultural sector using input-output analysis, finding significant multiplier effects. Olayungbo (2022), examined the role of Nigeria's mining sector in economic development using input-output analysis, highlighting the sector's potential for

Table 4. Type I and Type II output multiplier coefficients.

Sector	Initial	First Round	Indirect	Total	Consumption	Type I (%)	Type II (%)
Food/Beverage	1.000	0.399	0.326	1.726	0.910	1.726	2.655
Fishing	1.000	0.613	0.505	2.118	0.772	2.118	2.870
Mining/ Quarry	1.000	0.440	0.363	1.803	0.609	1.803	2.422
Agriculture	1.000	0.383	0.376	1.758	0.653	1.758	2.414

Table 5. Type I and Type II income multiplier coefficients.

Sector	Initial	First Round	Indirect	Total	Consumption	Total Income multipliers	Type I (\$B)	Type II (\$B)
Fishing	0.133	0.087	0.074	0.294	0.128	0.433	2.222	3.290
Food/Beverage	0.243	0.055	0.049	0.347	0.151	0.478	1.430	2.053
Agriculture	0.141	0.053	0.055	0.249	0.109	0.357	1.769	2.540
Mining/Quarry	0.107	0.072	0.053	0.232	0.101	0.334	2.178	3.01



growth. Kumar (2023), investigated the economic impacts of India's food processing sector using input-output analysis, emphasizing the importance of considering indirect effects. These studies demonstrate the ongoing relevance and advancements in input-output analysis and multiplier research.

However, the confirm the robustness of the results, an input-output analysis was used to analyze the interdependencies between different sectors of an economy. The results are as presented:

Table 6. Input-output analysis (robustness) results.

Sector	Output Multiplier	Income Multiplier
1	3.42	3.38
2	2.15	2.06
3	2.61	2.52
4	3.22	3.11

As presented in Table 6, results closely align with the Type II multiplier values, validating the initial findings, thus, confirming the robustness of the initial results, and providing strong evidence for, the fishing and mining/quarry sectors being key drivers of economic growth through investment, and the food and beverage sector having limited economic linkages.

Conclusion: The findings of the study revealed strategic sectors driving economic growth (fishing, mining/quarrying), substantial indirect effects through output and income multipliers as well as limited economic linkages in the food/beverages sector. The significance of this paper stems from its comprehensive analysis, which integrates sectoral contributions, interdependencies, multiplier effects, empirical evidence, as well as policy relevance, by identifying sectors for targeted investments (fishing and mining/quarry sectors) to stimulate economic growth and diversification strategies (food/beverage sector) to enhance its interdependencies. However, this study contributes to the understanding of Nigeria's economy, providing valuable insights for policymakers, researchers, and stakeholders in promoting economic growth, and investment decisions, enhancing sectoral planning, policy-making, and optimizing resource allocation. Policy recommendations for the study include promoting agricultural growth, economic diversification, infrastructural development as well as developing the fishing industry in the country.

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SDGs Addressed: No Poverty, Decent Work and Economic Growth, Industry, Innovation, and Infrastructure, Responsible Consumption and Production

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APPENDIX

Sectors	Agriculture	Fishing	Mining and Quarrying	Food and Beverage	Textiles and Apparel	Wood and Paper	Petroleum and Coal	Metal	Electrical and Electronic	Transport	Equipment	Other	Maintenance	Wholesale	Retail Trade	Hotels and Restaurants	Transport	Post and Telecommunications	Financial	Intermediary	Public Administration	Education	Private Health	Others	Re-export	
Agriculture	1162900000	618736.1	75202100	2145869000	35052290	90803360	10349840	476354.5	903772	236826.1	2355584	4934861	751960.2	52182120	1537388	5018556	134263000	553797100	2594074	263492.7	47997160	18315040	21549080	95286.3	266349.9	97104.49
Fishing	1309938	22593000	100760.6	110957000	12138.56	343.4175	40834.75	12522.01	3741.543	1322.147	1623950	102784.4	1886.21	1167.267	334449.4	1480.698	107251200	127279400	30220.26	1683.696	1476761	160092.6	2081798	26976.89	6383.872	262877.8
Mining and Quarrying	407265.1	14877.83	29784	327062.6	16085.43	44128.87	13175930	449256.5	40795.87	92746.37	7810.565	15602350	1675940	3634445	1408.238	48373.84	14274.74	264033.2	1750062	25325.15	1119647	1380022	702599.9	1215.035	610.053	34609.97
Food & Beverage	70354510	1591911	1799882	7790100	1151831	282344.9	2102135	7139.935	31150.49	15941.1	318798.3	2634551	76169.63	30378.27	731386.3	2611951	55692190	417198100	308332.4	62166.42	13752930	16133390	33627350	552831.2	16110.44	11853.96
Textiles and Apparel	1837713	590093.8	22576050	3783949	2463000	507065	1865472	111030.2	1883078	3421974	2056351	1423141	316120.1	2679812	249590.6	3218699	15371890	8067266	1669572	415158	4097882	3760085	7864157	64948.63	151706.8	27835.4
Wood and Paper	50027600	2348743	173567400	336693000	27092520	7261500	45466523	6527237	28013520	19029460	87960860	30734020	6355187	198036200	8689131	80647570	695837500	258550300	46612370	52724470	244546300	174507900	102812400	5307919	19652000	64119.05
Petroleum and Coal	195806700	9615271	773602400	244183000	1.12E+08	59957200	22442000	2166520	132834000	127028000	45527640	259435400	40786740	458758800	3356054	39541670	191324900	156775100	302262900	21985520	128174100	215619700	295255500	3321611	12407850	23907.34
Metal	14332600	1768041	862459700	251398600	13748550	11270350	76836100	11249000	278155500	238985200	78860400	297725800	6007663	437497700	3185001	26226140	230664400	133954400	56736460	7893271	72657370	44006180	16697210	1597218	11870120	84652.8
Electrical and Electronic	14110910	2487598	541229600	35446150	8346351	13379860	54990450	43403830	22352000	639539600	41852000	13889110	19855220	240255000	5539357	51054220	375580300	64601250	44321000	34432500	150090500	214805600	95200840	2401361	4934165	43677.41
Transport	1268929	748855.6	79407780	3280219	142785.8	113561.9	3850193	561883.3	18769460	9934700	3398030	444238.8	209079.9	13930010	973792.9	3826693	120434600	3309921	22573270	1174748	27950840	61407650	2129999	325657.8	144845.6	14198.25
Other	1734205	1189587	76650390	11119340	6437676	1764079	3347802	887995	6099971	30019510	359380	2213881	1236334	28916850	732265	9495582	67335870	37789090	5160954	2795281	34130700	10404370	18873470	2916316	449209.6	19842.4
Recycling	6177.777	73.15346	4942408	193175.8	9748.984	73309.26	492724.5	406098.8	28656.51	970.2363	13241.78	106540	373756	25494.69	1044.288	1009.254	25806.42	83094.94	107940.5	32079.21	296717.5	2098.046	286917.9	159.8223	67.74201	11876.4
Electricity	26676410	250090.7	524863300	66297420	10166720	15154250	74928690	21247580	27894860	13942770	4850122	8916552	740940	14535580	2485158	13961950	185308000	185623500	25520060	7175681	73047380	47960740	83835470	62561.8	2001532	28425.64
Construct	7878077	162326.9	550299100	14146610	2296437	3994853	17802750	5506366	9888676	3974293	2455602	168531.6	66035370	19799	1051707	10444620	73511330	47507420	26353530	11760180	184251500	139929300	4960390	908977.9	1273097	13775.01
Maintenance	1144344	52074.86	15509810	3113086	328723.4	207238	1175694	192081.2	1258713	881801.2	329631.2	197191	210022.6	3800739	41469	726027.5	2792346	6879088	960130.8	117379.3	2043281	759227.5	1416525	16109.09	14347.91	28272.32
Wholesale	111618100	3816474	737502300	396170200	68405900	58089980	186E+08	56739470	256331100	145206500	59947400	9410987	39015060	375220900	10360100	56534000	245426800	438983600	70371220	17614510	118089900	149894300	132415700	1675562	3321597	23131.68
Retail Trade	3762909	151044.6	108032000	2656415	1063020	284037.5	3462171	249404.9	2787011	2569567	2286640	697590.6	542224.9	58802710	491945.1	5695073	19710000	63751580	15321440	786039.9	23731060	1518647	7978957	23659.85	76339.4	19138.19
Hotels and Restaurants	442534.2	4606.215	14681620	4528279	526340.3	826873.7	2769267	728968.2	1995570	726493.5	624152.5	69955.9	6303795	4125583	327439.6	5320095	14530780	13908000	5534597	3800177	56032630	17883780	18681940	154515	80013.28	14777.11
Transport	52998880	1724511	1171485000	144982800	15040570	19211170	79525370	18666660	39158000	29443200	16535830	225465700	1.18E+08	156514300	10606820	170657900	409360700	199825000	38384000	14878950	101271000	70803150	75866200	719687.1	3531088	30592.83
Post and Telecommunications	7706717	911025.2	97888040	27262780	7664183	14470490	31114170	12691160	92522940	16761270	11312880	1276313	44759730	162745900	22899020	315304000	1028615000	422389500	360842400	52176000	314328300	388302000	170036400	7880233	25061690	21879.19
Financial	461354300	6239492	2397601000	915557000	2.5E+08	2.53E+08	1.15E+09	3.11E+08	1445809000	543241000	1.96E+08	9587102	6.37E+08	1971016000	1.34E+08	2080483000	4373844000	2343416000	2168388000	1.45E+09	1250600000	1804533000	1891390000	51617830	1.21E+08	16532.97
Public Adm	174794.9	2334.763	2963315	407694.9	25411.72	56122.92	254775.4	42512.26	80732.46	55462.46	83128.25	4318.447	20844.52	107285	15916.33	111073.7	855471.5	1392599	433430.4	300350.4	5218927	158.14	1170549	150167	1474235	3668.359
Education	443405	397126.5	11572860	5986657	946156	1446906	5536962	1296691	3972727	1553797	895911.7	115110	6065932	9956258	710566.8	9982062	28102560	69713120	14602240	28732120	158426400	84724130	40326	7385469	1228460	11491.94
Private Hc	81.12626	82.62635	1245.832	261.8082	233.9336	205.109	227.7032	216.3215	300.8305	352.5014	279.0157	660.2182	226.4001	339.9235	239.485	239.3899	276.6396	527.2735	225.0705	231.8983	908.4305	77910.54	52372.88	158.14	72.09338	4227.45
Others	4726052	599960.6	101495100	11208780	2759979	1035469	4282657	2138033	5634905	1231989	992337.7	2125918	5430287	7692484	1458765	33401690	49812580	48044000	12832180	4529480	38214080	7086930	10471980	744023.2	521.8	44953.69
Re-export	40.67279	40.12357	1344.946	72.91995	72.68522	69.54675	75.40388	73.20437	76.99698	79.59987	75.7132	911.2607	73.20768	73.98736	71.11172	72.08237	106.6937	72.37877	74.24984	72.07734	75.4748	69.77735	70.62227	77.39161	75.69916	521.8
Compens	72255140	10557100	177653600	226730400	91491040	1.68E+08	3.44E+08	1.89E+08	625396700	231574000	1.01E+08	10897200	2E+08	1247922000	54623420	1108832000	1244304000	744747200	751519600	6.08E+08	2686204000	2997917000	4439556000	1.32E+08	17624020	3932.704
Taxes on f	1203320	440335.3	40928560	33005090	1459668	2804710	22744900	3811557	7936136	2725405	1574040	154730.9	31075660	20376790	4272410	84514910	101348800	37869880	18357430	23171260	145798900	12721210	50199980	436150.1	809135.7	3932.704
Subsidies	-8330602	-292756	-708251.1	-12248850	-125211	-435202	-1584180	-385726	-1600968	-243161.5	-167550	-1482.256	-8221725	-8548742	-668832	-17962340	-12396260	-3418708	-4215616	-6325942	-50351600	-873884.8	-21779370	-22156.3	-268638	-154.439
Net opera	6223971000	4.36E+08	1.4184E+10	8048809000	1.45E+09	2.92E+09	9.31E+09	2.31E+09	8063972000	3947294000	1.65E+09	121853400	5.25E+09	9303713000	7.05E+08	1.3936E+10	1.42727E+10	8481559000	7998785000	1.25E+10	1.1398E+11	1.3914E+10	3.9524E+10	2.58E+08	1.49E+09	3932.704
Net mixer	60512030	2703238	144330600	94373290	23145350	43516240	1.18E+08	42285580	143896400	65572010	28531300	745364.9	1.2E+08	278956300	15849510	294183300	392339800	222543100	160664400	2.31E+08	1497177000	980430100	1108328000	53565400	11773930	3932.704
Consumpt	50805250	2446571	102859000	45572020	10387320	21089710	82009970	24456930	91047120	37129070	12650460	1183830	53284680	100980800	4548065	83862020	113051300	7046427	7249860	1.25E+08	100213600	257141000	34024000	260840	1128140	3932.704